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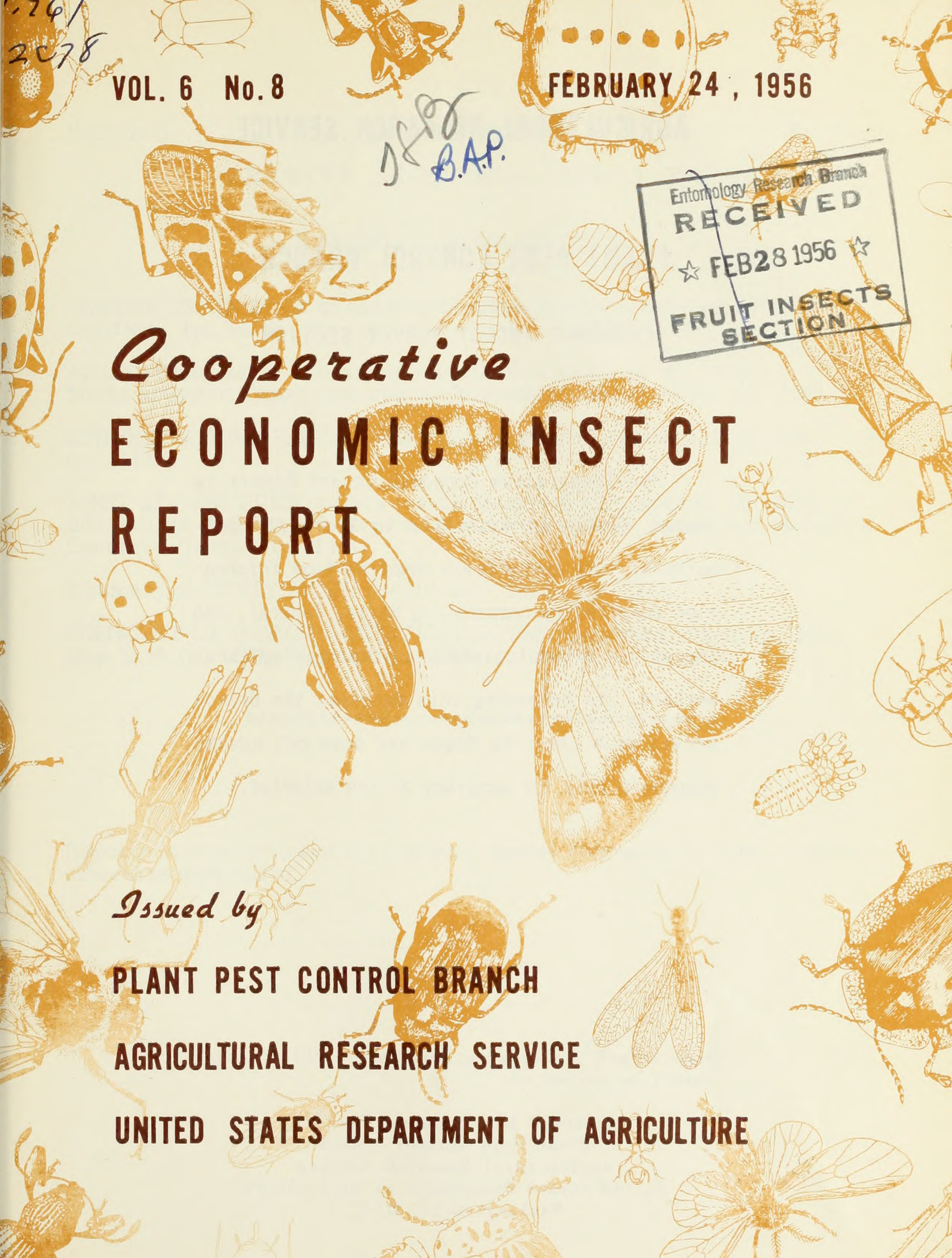

VOL. 6 No. 8

FEBRUARY 24, 1956

B.A.P.

Entomology Research Branch
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FRUIT INSECTS
SECTION

Cooperative
ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

ECONOMIC INSECT SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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Economic Insect Survey Section
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Volume 6 February 24, 1956 No. 8

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

WINTER GRAIN MITE of concern in small grains in some north Texas counties. (p. 141) .

ARMYWORM larvae appearing in northern Louisiana. (p. 141)
Moths active in Texas, Louisiana, Mississippi and Georgia. (p. 146).

SOUTHERN CORN ROOTWORM adults damaging alfalfa in Louisiana. (p. 141).

BEET LEAFHOPPER outlook for the Intermountain Region. (p. 143).
Infestations medium to heavy on spinach in Dimmit, Zavala and Maverick Counties, Texas. (p. 144).

Summary of GYPSY MOTH conditions - 1955. (p. 148).

SUMMARY OF INSECT CONDITIONS - 1955 - in Pennsylvania (p. 150), New York (p. 153), Virginia (p. 158).

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Reports in this issue are for the week ending February 17, 1956, unless otherwise designated.

WEATHER BUREAU'S 30-DAY OUTLOOK
Mid-February to Mid-March 1956

The Weather Bureau's 30-day outlook for the period from mid-February to mid-March calls for temperatures to average below normal in the western half of the country, with greatest departures in the Plateau Region. East of the Mississippi above normal temperatures are predicted, with warmest weather along the Gulf Coast. Precipitation is expected to be subnormal in New England, the South Atlantic States, and the Southern Plains. In the remainder of the nation above normal amounts of rain and snow are indicated.

This report released by the Weather Bureau on February 17, 1956.

Weather forecast given here is based on the official 30-day "Resume and Outlook", published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price: $4.80 a year, $2.40 for six months.

WEATHER FOR THE WEEK ENDING February 20, 1956

Early meterologists called zone of interaction between warm and cold air "The Kampfzone" (Battleground). This characterization very appropriately describes conditions existing over the U. S. for the past week. Very cold air hovered over the northwestern part of the country, while warm, moist air lingered over the Southeast. Near record cold for February (minus 36°) occurred at Mellette, South Dakota, while very warm weather (above 90°) prevailed in the Rio Grande Valley. Blizzard conditions in the Dakotas on February 15-16; tornadoes ripping across Texas and Mississippi; glaze and sleet from Kansas to Indiana; local flooding in Kentucky and Tennessee; light freeze in Florida and California; and the start of maple sugaring in New York--all indicate the confusion resulting from the approach of spring. Moderate to heavy rains again occurred in the Southeast and along the Gulf Coast. Public transportation in New Orleans was halted from 3 p. m. to 6 p. m. on Wednesday due to streets being flooded by heavy thunderstorms, and considerable inconvenience was experienced in New England as 1 to 10 inches of snow fell on Feb. 18. More than one inch of precipitation fell in a broad band extending from east Texas to New England. Lighter rain fell along the South Atlantic Coastal area. Soil moisture conditions are generally good east of the Mississippi River, although Kentucky and Tennessee are suffering locally from a light flood in the lowlands. Elsewhere, light snow falls in the North and Northwest added to an already excellent accumulation, and in the Southwest where added moisture would be very welcome, only light amounts of snow fell in the mountains. Very cold temperatures penetrated the Northwest and Plains States, with the zero line reaching as far South as Nevada, Utah, Colorado, Nebraska, Iowa and Wisconsin. Coupled with the snow cover the cold forced heavier feeding of livestock, placing a drain on feed supplies. In the Northwest, high winds along with

(Weather continued on p.

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - LOUISIANA - Light infestations in oats in Red River, Bossier, Ouachita and East Carroll Parishes. (Oliver). OKLAHOMA - Reported from one field in Tillman County. (Hudson).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Heavy local to widespread infestations on oats and other small grains in Milam, Van Zandt and Denton Counties. (Chada, Hawkins, Moore). Light to medium local infestations on oats in Delta and Hunt Counties. Heavy widespread infestations on wheat, oats and barley in Collin County. Under some hills of grain, 25-30 mites found on ground. (Hawkins).

ARMYWORM (Pseudaletia unipuncta) - LOUISIANA - Found over northern area with 2-15 first to third instar larvae per square yard in Bossier Parish and 0-5 larvae per 100 sweeps of oats-clover, oats-alfalfa mixtures and oats in Ouachita, East Carroll, West Carroll, Tensas and Avoyelles Parishes. (Oliver).

RHODES-GRASS SCALE (Antonina graminis) - GEORGIA - Moderate damage to Bermuda grass in Tift County. (Beck).

CRANE FLIES - CALIFORNIA - Two species, Tipula simplex and T. quaylei, caused serious damage to pasture grass on 700 acres in Santa Clara County. (Cal. Coop. Rept., Feb. 1-15).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - LOUISIANA - Very abundant in all forage crops examined. From 100 per 100 sweeps of alfalfa in Bossier Parish, 203 per 100 sweeps of vetch-oats-clover mixture in Ouachita Parish and 1-70 per 100 sweeps of alfalfa, clover, oats and vetch in Avoyelles, Red River, Natchitoches, Webster, Claiborne, West Carroll, East Carroll, Tensas, Rapides and Grant Parishes. Causing considerable damage to alfalfa. (Oliver).

SPOTTED ALFALFA APHID - CALIFORNIA - General over Kings County alfalfa fields and light infestations in Orange and Riverside Counties. (Cal. Coop. Rept., Feb. 1-15). TEXAS - Light, local infestations on alfalfa in Collin County. (Hawkins). OKLAHOMA - Populations lower than during past five months for counties of Major, Custer, Comanche, Grady, and McClain and ranged from 900-6600 per square foot of alfalfa crown. (Coppock). Some spraying being done in southeastern area. (Hudson). KANSAS - A few adults and nymphs found in alfalfa in Cowley County. (Burkhardt, Peters). LOUISIANA - A general survey north of U.S. Highway 190 showed infestations in 10 of 11 fields examined. Light to moderate infestations in infested fields. Infestations found for the first time in three parishes: Avoyelles, East Carroll and Tensas. (Oliver).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - LOUISIANA - Very light infestations in complex with Diabrotica balteata, Trichoplusia ni, Macrosiphum pisi and Lygus lineolaris, in forage crops in southern areas. (Oliver).

LEAFHOPPERS - LOUISIANA - A single female of Empoasca sp. found on alfalfa in Avoyelles Parish. (Oliver).

GREEN CLOVERWORM (Plathypena scabra) - LOUISIANA - Infestations from 0-12 per 100 sweeps of alfalfa, clover, and vetch in Avoyelles, Rapides, Natchitoches, Red River, Bossier, Webster, Claiborne, Ouachita, East Carroll and Tensas Parishes. (Oliver).

CLOVER LEAF WEEVIL (Hypera punctata) - LOUISIANA - Larvae infesting alfalfa and clover at 1-32 per 100 sweeps in Rapides, Natchitoches, Red River, Bossier, Ouachita, East Carroll and Tensas Parishes. (Oliver).

SPRINGTAILS - LOUISIANA - Populations very heavy in all fields examined north of U. S. Highway 190. (Oliver).

Small Grain Insect Survey, Oklahoma

A survey of 41 fields of small grain in western areas showed ARMY CUTWORM present in all but four fields. Average number of larvae was 1.2 per square foot of surface area and a maximum of 13 per square foot. BROWN WHEAT MITE occurred in three counties: Major, Woods and Dewey. (Coppock).

FRUIT INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - LOUISIANA Attacking plum trees in East Baton Rouge Parish. (Oliver).

Citrus Insect Situation, California

CALIFORNIA RED SCALE infestations heavy in some citrus in San Bernardino County. Infestations in Orange County remained light, and light to heavy in Riverside County. Medium infestations in Santa Barbara County. CITRUS BUD MITE occurred in Orange County in light to medium infestations and light to medium in citrus in Santa Barbara County. Medium infestations of CITRUS RED MITE in Santa Barbara County citrus on the coast. Infestations of BLACK SCALE were medium in citrus in Santa Barbara County. (Cal. Coop. Rept., Feb. 1-15).

TRUCK CROP INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Heavily infesting mustard crops in Orange County. (Cal. Coop. Rept., Feb. 1-15). FLORIDA - Larvae averaging two per leaf of turnip at Quincy, Gadsden County. (Tappan, Feb. 6). GEORGIA - Moderate to heavy local infestation on tobacco in beds in Lowndes County. (Johnson).

APHIDS - TEXAS - Medium infestation on leafy vegetables in Lavaca

County. (Adams). NORTH CAROLINA - Numerous requests for control on collards in Currituck, Pasquotank and Martin Counties. (Scott).

CABBAGE APHID (Brevicoryne brassicae) - CALIFORNIA - Medium infestations in Orange County cabbage and light to medium in cole crops in Santa Barbara County. (Cal. Coop. Rept., Feb. 1-15). GEORGIA - Moderate to heavy infestations on cabbage in Colquitt, Brooks and Lowndes Counties. (Johnson).

TURNIP APHID (Rhopalosiphum pseudobrassicae) - LOUISIANA - Very heavy infestations in two turnip fields of Rapides Parish. (Oliver).

Beet Leafhopper Conditions in Utah, Western Colorado, Southern Nevada Southeastern California and Central Arizona - 1956

The beet leafhopper spring movement from the southern desert breeding grounds to the cultivated districts of north and south central Utah and western Colorado is expected to be light. The movement to southern Utah, southern Nevada, southeastern California and central Arizona is also expected to be light. The local movement from the breeding grounds of north and eastern Utah to the adjacent cultivated districts of northern Utah and western Colorado is expected to be light. The overwintering population in the southern breeding grounds of the beet leafhopper of southeastern California, western and southern Arizona, southern Nevada, and southern Utah is very small. The spring host plant acreage in the southern breeding grounds is greatly reduced over that of the last 10 years. In northern Utah and eastern Utah breeding grounds a moderate population entered the winter under unfavorable conditions. A light leafhopper movement to the cultivated districts of northern Utah and western Colorado is to be expected. It must be emphasized that this statement is based upon present conditions. The movement of the leafhoppers into the cultivated districts of central Utah and western Colorado is expected to start by mid-April and probably will reach its peak by mid-May. The abundance of the population engaged in this movement will depend upon unpredictable weather fluctuations during the next month which affect the development of the beet leafhopper and its host plants. However, as a result of experiences in previous seasons, conditions as observed in 1956 have been associated with light movement of leafhoppers to the cultivated districts. Experience has shown when an early spring follows a mild winter it usually advances the date of the beet leafhopper movement from the uncultivated breeding grounds to the cultivated districts. On the other hand, a late spring with excessive rainfall delays the date of the movement. For these reasons, a later statement will be issued on beet leafhopper conditions. This will be based on additional information obtained from surveys now in progress. (Dorst, Knowlton).

BLACK CUTWORM (Agrotis ypsilon) - LOUISIANA - Average of one per plant in a field of strawberries in East Baton Rouge Parish. (Oliver).

FALSE CHINCH BUGS (Nysius sp.) - TEXAS - Heavy widespread infestations on wild mustard in Zavala and Dimmit Counties. (Rhichardson).

MOLE CRICKETS - GEORGIA - Light to moderate local infestations in tobacco plant beds in Lowndes County. (Johnson).

BEET LEAFHOPPER (Circulifer tenellus) - TEXAS - Medium to heavy widespread infestation on spinach in Dimmit, Zavala and Maverick Counties (Richardson).

ARTICHOKE PLUME MOTH (Platyptilia carduidactyla) - CALIFORNIA - Heavy infestations in artichokes in Santa Barbara County. (Cal. Coop. Rept., Feb. 1-15).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - A total of 34.9 pounds of seed was examined for larvae from 123 samples from 24 counties up to February 2, 1956. Two live and 48 dead larvae were found. A total of 2947 larvae reported from 140 lint cleaner inspections and 3686 larvae in 261 gin stand inspections. (Bower).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

LESSER BULB FLY (Eumerus tuberculatus) - CALIFORNIA - Heavy numbers in iris in small area in Colusa County. (Cal. Coop. Rept., Feb. 1-15).

FLORIDA WAX SCALE (Ceroplastes floridensis) - NORTH CAROLINA - Infesting holly in Nash County. (Scott).

SOFT SCALE (Coccus hesperidum) - FLORIDA - Nymphs averaging 100 per plant on tropical almond at Princeton, Dade County and on leaf of fern at Coconut Grove, Dade County. (Shepard, Miles).

JUNIPER WEBWORM (Dichomeris marginella) - NORTH CAROLINA - Moderate local infestation on junipers in Graham County. (Scott).

PINE BARK APHID (Pineus strobi) - VIRGINIA - Has heavily damaged white pines on a plantation in Wythe County. (Rowell).

SPIDER MITES - MISSISSIPPI - Tetranychus sp. occurred on cedar from Humphreys County, February 13. Foliage was dropping from trees. (Hutchins). MARYLAND - Injuring hemlock, Baltimore. (U. Md. Ent. Dept.).

Texas Forest Insect Situation

SOUTHERN PINE BEETLE infesting one tree in lower Hardin County; first infestation in area in several years. A PINE REPRODUCTION WEEVIL infesting a half acre of a 2-year-old pine plantation in San Augustine County. RED-HEADED PINE SAWFLY infestation, previously reported, continues active in San Augustine County. BLACK TURPENTINE BEETLE continues to cause death of trees in Hardin, Polk, Montgomery and Walker Counties. A PINE TIP MOTH has seriously infested a year-old plantation in southern Jasper County. (Texas Forest Pest Committee).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE LICE - UTAH - Common in Box Elder County in about average numbers. (Brown, Knowlton). VIRGINIA - Light infestation of Solenopotes capillatus and Bovicola bovis on dairy yearlings in Montgomery County. (Turner, Raffensperger, Keeton, Morris).

CATTLE GRUBS - UTAH - Have been appearing in backs of Box Elder County cattle for past four weeks and are showing in backs of cattle in some parts of Cache County. (Brown, Knowlton). OKLAHOMA - Populations in 100 cows average 2.9 per animal in western Payne County. (Howell). MARYLAND - Survey of 12 farms in Queen Annes, Frederick and Harford Counties showed the following: beef cattle, 17 out of 72 infested, average of 5.5; dairy cattle, 49 out of 214 infested, average of 3.8. Grubs more prevalent in animals under two years old. (U. Md. Ent. Dept.).

HOUSE FLIES - ARIZONA - Fly, mainly Musca domestica, populations indices of two small towns in southeastern Maricopa and northwestern Pinal Counties average of five highest grill counts in nine blocks for February 5-11:51.2. (Ariz. Coop. Rept.).

A GNAT (Leptoconops torrens) - CALIFORNIA - Larvae found southeast of Davis in adobe subsoil. This is the second area from which larvae have been recovered. (Cal. Coop. Rept. Feb. 1-15).

A BOT FLY (Cephenemyia sp.) taken from trachea of mule deer fawn, and may have caused its death. (Det. F. G. Werner). (Ariz. Coop. Rept.).

BROWN DOG TICK (Rhipicephalus sanguineus) - OKLAHOMA - Reported from major towns and cities. (Howell).

BENEFICIAL INSECTS

PREDACEOUS BEETLES - LOUISIANA - Hippodamia convergens, Collops balteata were present in forage crops in fields north of highway 190 along with some predaceous bugs. (Oliver). OKLAHOMA - H. convergens numerous in alfalfa in Major County. (Coppock).

A PARASITE (Aphycus helvolus) - CALIFORNIA - Effectively parasitizing black scale in Orange County. (Cal. Coop. Rept., Feb. 1-15).

STORED PRODUCT INSECTS

STORED GRAIN INSECTS - SOUTH DAKOTA - An infestation of FLAT GRAIN BEETLE occurred in 1955 in stored wheat in Moody County. Heavy infestations of CADELLE reported from 1955 stored wheat in Yankton County. Several inquiries received about INDIAN-MEAL MOTH in home stored cereals. (Lofgren, Hantsbarger, Feb. 14). NORTH CAROLINA - Corn received at elevator from eastern counties is low in quality with much insect damage. (Jones, Farrier).

MISCELLANEOUS INSECTS

POWDER POST BEETLES - SOUTH DAKOTA - Several infestations reported from Yankton and Roberts Counties. (Lofgren, Hantsbarger, Feb. 14).

TERMITES - SOUTH DAKOTA - Subterranean termites damaging a home in Belle Fourche, Butte County. (Lofgren, Hantsbarger, Feb. 14).

BOXELDER BUG (*Leptocoris trivittatus*) - OKLAHOMA - Appearing in moderate numbers in homes in Isabella, Major County. (Stiles). VIRGINIA - Causing concern in Lee, Cumberland, Montgomery and Bedford Counties. (Rowell, Morris).

AMERICAN COCKROACH (*Periplaneta americana*) - NORTH CAROLINA - A persistent problem in a public building in Davidson County. (Scott).

Light Trap Collections

TEXAS (College Station, 2/10-17/56): *Pseudaletia unipuncta*, 43; *Prodenia ornithogalli*, 40; *Peridroma margaritosa*, 8; *Agrotis ypsilon*, 2; *Feltia subterranea*, 10; *Agrotis malefida*, 22. (Beaumont, 2/11-15/56): *P. unipuncta*, 33; *P. ornithogalli*, 6; *A. ypsilon* 1; *Heliothis zea*, 1. LOUISIANA (Baton Rouge, 2/12-17/56): *A. ypsilon*, 3; *F. subterranea*, 29; *P. margaritosa*, 1; *P. ornithogalli*, 3; *P. unipuncta*, 8. MISSISSIPPI (State College, 2/13-16): *A. ypsilon*, 1; *P. unipuncta*, 2; *P. ornithogalli*, 2; *Euetheola rugiceps*, 4. GEORGIA (Tifton, 2/4-10/56): *P. unipuncta*, 14; *F. subterranea*, 19; *A. malefida*, 20; *A. ypsilon*, 4; *P. ornithogalli*, 11. FLORIDA (Belle Glade, Dec. 3, 1955 to 1/31/56): *F. subterranea*, 1; *Protoporce sexta*, 1.

Weather Continued

low temperatures did some damage as fields were blown bare. Freezing temperature in California and Arizona did some light damage and required active protection in orchards. Much above normal temperatures in the Southeast resulted in rapid greening of pastures and swelling of buds. In the zone between, alternate freezing and thawing is pulverizing top soil in the Southern Plains and allowing moisture from melting snow to penetrate the ground. The snow cover is retreating Northward slowly in the Mississippi drainage with much of the moisture entering the ground. Moderate flooding is occurring on the Green River in Kentucky and on the Ohio River below Evansville, Indiana. The Ohio rose to flood stage at Cincinatti and will exceed flood stage from Louisville down stream. Whereas the snow cover is slowly retreating in the East except for temporary additions such as in New England on February 18, the snow continues to accumulate in the Northwest. This week, Mt. Baker Lodge, Wash., reports 287 inches in contrast to 228 inches last week, and Crater Lake, Oregon, reports 150 inches as compared with previous value of 117 inches. Lesser increases have occurred in Colorado, Idaho and Montana. (Summary Supplied by U. S. Weather Bureau).

SUMMARY OF GYPSY MOTH CONDITIONS - 1955

Reported by H. L. Blaisdell

Following the record-breaking outbreak of gypsy moth in 1953, cooperative surveys in southern New England and eastern New York areas showed extensive spread of the pest into previously uninfested territory. To determine the extent of such spread, sex-attractant traps were distributed in the summer of 1955 in a long arc beyond the southern and western limits of known infestation. Traps were placed on a grid pattern in a continuous belt of territory extending from western Long Island through northern New Jersey and northeastern Pennsylvania to the southern foothills of the Adirondack Mountains east of Utica, New York. Male gypsy moths were captured throughout much of the area trapped. Although only a few specimens were recovered near the outer extremity of the trapped area, the limits of recent spread cannot be conclusively determined until completion of at least another extensive trapping program. A rapid scouting survey in progress since completion of the summer trapping work has shown an extension of infestation west of the trapped area in the vicinity of Utica, New York. Consideration is being given to revision of the area under regulation in the Federal quarantine in the light of this extension of infestation.

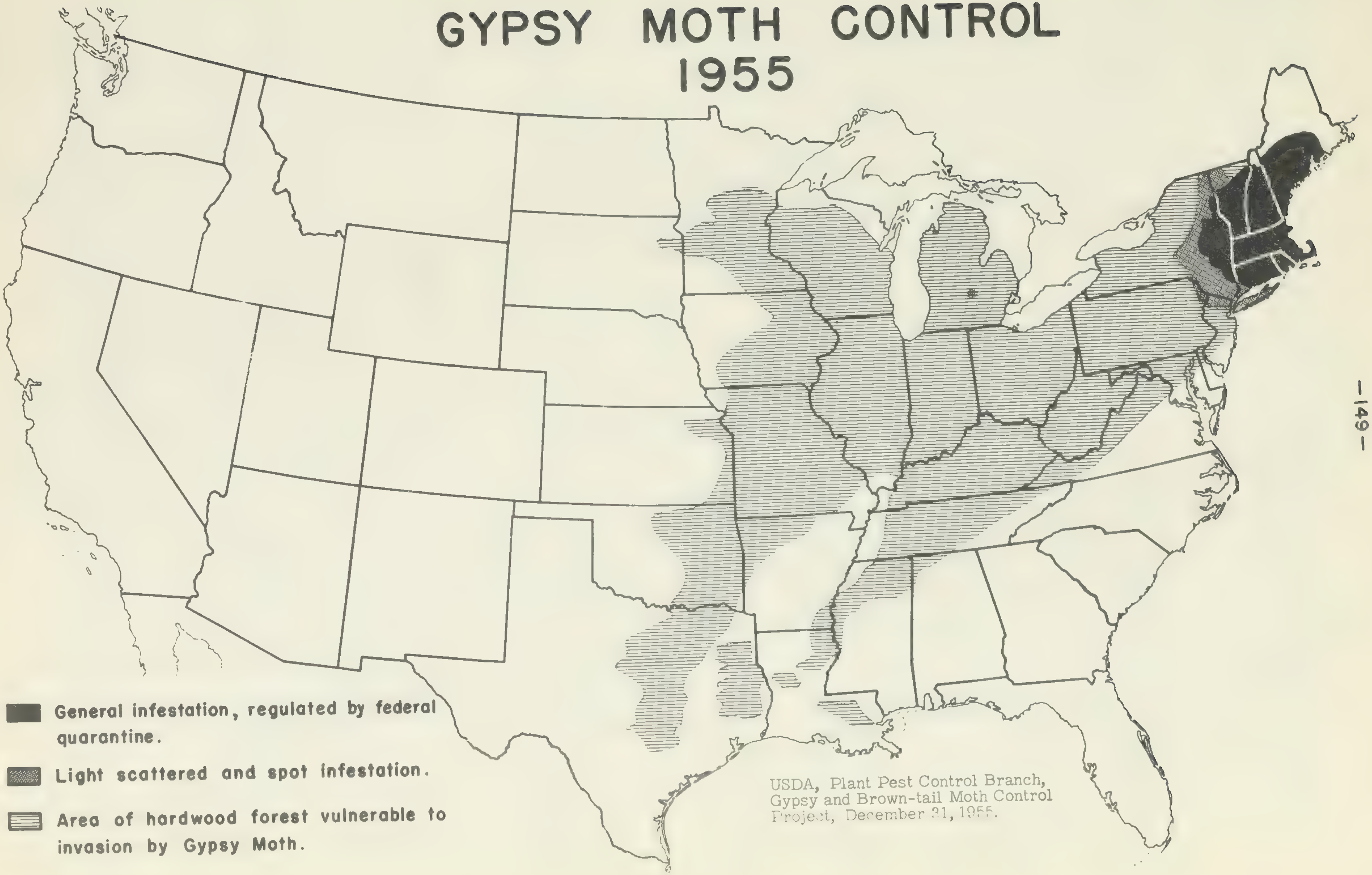
A cooperative trapping survey in Michigan resulted in the capture of male gypsy moths in 23 of the 3,700 traps used. These recoveries were made in scattered locations beyond the periphery of territory in the vicinity of Lansing where spray treatments have been successfully applied. It is evident that the central area of infestation in Michigan has been cleaned up and only the detection and mop-up of infested spots in fringe areas remains to be accomplished. Intensive trapping surveys and any necessary control work will be continued to obtain early eradication of this isolated infestation.

In the spring of 1955, DDT sprays were applied by aircraft and mist blowers on 1,108,298 acres. A major portion of this acreage was treated by State agencies within the generally infested region to suppress infestation outbreaks. Federal operations included the spraying of 167,691 acres of peripheral infestation and assistance in the spraying of 35,970 acres by the Michigan Department of Agriculture.

Gypsy moth populations in the older area of infestation in central and eastern New England are at the lowest level noted in many years. This decline resulted from two successive summers in which larval mortality was heavy because of expanded local spray programs and the prevalence of wilt disease. Unfortunately the wilt disease has not been an important control factor in the fringe areas of general infestation and outbreak centers continue to develop at various locations in western New England and eastern New York.

The accompanying map illustrates the known distribution of the gypsy moth on December 31, 1955.

GYPSY MOTH CONTROL
1955


■ General infestation, regulated by federal quarantine.
▩ Light scattered and spot infestation.
▤ Area of hardwood forest vulnerable to invasion by Gypsy Moth.

USDA, Plant Pest Control Branch, Gypsy and Brown-tail Moth Control Project, December 31, 1955.

SUMMARY OF INSECT CONDITIONS - 1955

PENNSYLVANIA

Reported by J. O. Pepper

Cereal and Forage Crop Insects

HESSIAN FLY (Phytophaga destructor) was generally more abundant and considerable loss resulted in southern and central areas. EUROPEAN WHEAT STEM SAWFLY (Cephus pygmaeus) adults were very numerous in some southern Pennsylvania wheat fields but fallen straws were not excessive at harvest time. SLUGS were unusually abundant and caused considerable injury, particularly in low spots in corn fields. CLAY-BACKED CUTWORM (Agrotis gladiaria) were in outbreak numbers in the south central areas, damaging corn, tomatoes, cabbage and tobacco. SOD WEBWORMS reduced stands and in some fields the combination of SOD WEBWORMS and CUTWORMS damaged fields to the extent that replanting was necessary. EUROPEAN CORN BORER (Pyrausta nubilalis) caused a loss in 1955 of over two million dollars. This represents a loss of one million bushels of field corn over 1954. ALFALFA WEEVIL (Hypera postica) was found in nine additional counties in 1955 bringing the total number of counties infested to 23. Severe damage occurred in the southern parts of Lancaster, York, and Chester Counties and in the southeastern corner of Adams. Spotted areas of considerable injury occurred elsewhere in the infested area and concern is felt for the concentrated alfalfa growing areas of Berks and Lehigh Counties in 1956. YELLOW CLOVER APHID (Pterocallidium trifolii) was found in Northumberland and Centre Counties. MEADOW SPITTLEBUG (Philaenus leucophthalmus) was in normal numbers and unsprayed fields showed considerable reduction in yield. CLOVER LEAF WEEVIL (Hypera punctata) and LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) were abundant in some fields. Damage to corn by WIREWORMS was severe in low spots of fields and damage was considerable from spotted areas over the State.

A light infestation of STALK BORER (Papaipema nebris) occurred in corn and flowers in south central Pennsylvania. Small localized outbreaks of ARMYWORM (Pseudaletia unipuncta) occurred in scattered areas and several acres of corn near barley fields were destroyed. CHINCH BUG (Blissus leucopterus) caused moderate damage to corn in central counties. Control measures prevented considerable loss. Control measures were necessary on FALL ARMYWORM (Laphygma frugiperda) on late sweet corn in western Pennsylvania. CORN EARWORM (Heliothis zea) continues to be a problem in mid-season and on late sweet corn. In late September the YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) destroyed August seedings of alfalfa in the southeastern section.

Fruit Insects

The first generation emergence of CODLING MOTH (Carpocapsa pomonella) was prolonged by cool weather until the generations over-

overlapped. Late sprays were necessary to prevent late entries. EASTERN TENT CATERPILLAR (Malacosoma americanum) and the SPRING CANKERWORM (Paleacrita vernata) in the southeast and APPLE MAGGOT (Rhagoletis pomonella) generally were very abundant on unsprayed orchards. PLUM CURCULIO (Conotrachelus nenuphar) was abundant on unsprayed peach and apple orchards. ROSY APPLE APHID (Anuraphis roseus), APPLE GRAIN APHID (Rhopalosiphum fitchii), and APPLE APHID (Aphis pomi) were in moderate numbers and the WOOLLY APPLE APHID (Eriosoma lanigerum) probably showed a slight increase. EUROPEAN RED MITE (Metatetranychus ulmi) and TWO-SPOTTED SPIDER MITE (Tetranychus telarius) were very abundant on apple and peach earlier than usual but control measures prevented serious injury. The latter were reported often doing injury to raspberry. RED-BANDED LEAF ROLLERS (Argyrotaenia velutinana) were quite numerous in some orchards but generally were kept under control by spraying. Moderate infestations of the EYE-SPOTTED BUD MOTH (Spilonota ocellana) on peaches and apples and the LESSER PEACH TREE BORER (Synanthedon pictipes) on peaches were observed in northwestern Pennsylvania. EUROPEAN FRUIT LECANIUM (Lecanium corni), TERRAPIN SCALE (L. nigrofasciatum) and ORIENTAL FRUIT MOTH (Grapholitha molesta) were very abundant in unsprayed peach orchards. A light infestation of the UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) was found in Adams County on apples. A survey showed the GRAPE PHYLLOXERA (Phylloxera vitifoliae) as abundant in a number of vineyards on Concord grapes as in 1954. GRAPE BERRY MOTH (Paralobesia viteana) was in moderate numbers but slightly greater than in 1954.

Vegetable insects

FLEA BEETLES were unusually abundant on potatoes, tobacco, tomatoes and cabbage. Unsprayed fields of potatoes were severely injured. Species on cabbage identified as Phyllotreta aerea. CLAY-BACKED CUTWORM (Agrotis gladiaria) destroyed considerable tomato, cabbage, and corn plants, and DINGY CUTWORM (Feltia subgothica) destroyed cucumbers and raspberry plants in northwestern Pennsylvania. ASPARAGUS BEETLES were generally abundant and, in some instances, caused severe injury. SYMPHILIDS caused the loss of six acres of tomatoes and heavy damage to other tomatoes, beans, cucumbers, and peppers in the Susquehanna Valley area of central Pennsylvania. SLUGS caused injury to sweet corn and entered cabbage heads late. CABBAGE MAGGOT (Hylemya brassicae) was quite abundant with 5 to 25 percent infestation in northeastern Pennsylvania. Several light infestations of the TOMATO RUSSET MITE (Vasates lycopersici) were reported but prompt control measures prevented injury. Control was necessary in some fields in central area for the PEA APHID (Macrosiphum pisi). HORNWORMS (Protoparce spp.) were general but not abundant and parasitism was heavy. EUROPEAN EARWIG (Forficula auricularia) was reported several times from gardens in northwestern Pennsylvania. SAP BEETLES were of some importance on sweet corn ears. IMPORTED CABBAGEWORM (Pieris rapae) was numerous early in the season but was controlled by sprays later. CABBAGE

LOOPER (*Trichoplusia ni*) became a serious problem in cabbage and cauliflower. Other insects of some importance were TARNISHED PLANT BUG (*Lygus lineolaris*), PARSNIP WEBWORM (*Depressaria heracliana*), STALK BORER (*Papaipema nebris*), SERPENTINE LEAF MINER (*Liriomyza* sp.) on tomatoes, GRASSHOPPERS, POTATO LEAFHOPPER (*Empoasca fabae*) and the COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*).

Forest and Shade Tree Insects

EUROPEAN PINE SHOOT MOTH (*Rhycionia buoliana*) is becoming so prevalent that control measures are necessary, particularly in red pine. PALES WEEVIL (*Hylobius pales*) *Pissodes approximatus*;, PINE ROOT-COLLAR WEEVIL (*H. radicis*), and STRAWBERRY ROOT WEEVIL (*Brachyrhinus ovatus*) are becoming serious problems in Christmas tree plantations.

Man and Animal Insects

NORTHERN FOWL MITE (*Bdellonyssus sylviarum*) caused severe injury to broiler turkeys in Clearfield County. Numerous requests for information on FLEAS and MOSQUITOES were received. BED BUG (*Cimex lectularius*) seems to be increasing, judging from the number of reports received.

Miscellaneous Insects

Increasing number of requests were received for information on OLD HOUSE BORER (*Hylotrupes bajulus*) and the VARIED CARPET BEETLE (*Anthrenus verbasci*). ELM LEAF BEETLE (*Galerucella xanthomelaena*), BOXELDER BUG (*Leptocoris trivittatus*), and several species of *Brachyrhinus* and other weevils caused much concern in homes. An unusual number of reports were received of CASEBEARERS (*Coleophora* sp.) on the sides of houses and WHARF BORER (*Nacerdes melanura*). During August, an outbreak of a MARCH FLY (*Bibio longipes*) extended over north central area. BLACK WIDOW SPIDER (*Latrodectus mactans*) was very abundant and received considerable newspaper publicity. Other insects that were of importance in homes: CLUSTER FLY (*Pollenia rudis*), particularly in older homes with shingle or loose siding, and, in southeastern area during its migration period, EASTERN TENT CATERPILLAR (*Malacosoma americanum*).

SUMMARY OF INSECT CONDITIONS - 1955

NEW YORK

Fruit Insects

Reported by A. A. LaPlante

Apple Insects

APPLE MAGGOT (Rhagoletis pomonella) continued to be a serious threat in 1955. In most commercial plantings infestations were relatively low and mostly local. Infestation in unsprayed orchards continued at a very high level and very widespread. EASTERN TENT CATERPILLAR (Malacosoma americanum) was of minor importance in commercial orchards but in unsprayed orchards it was rather general and abundant, indicating a continuous high level of activity which began approximately four years ago. EYE-SPOTTED BUD MOTH (Spilonota ocellana) continued at a relatively low level in commercial orchards despite one or two local outbreaks and appears to be on an increasing cycle in unsprayed orchards. FALL CANKERWORM (Alsophila pometaria) was relatively minor in commercial orchards, with considerable activity in unsprayed orchards. CODLING MOTH (Carpocapsa pomonella) increased in activity in 1955 in commercial orchards. In a number of instances rather serious economic damage occurred. In unsprayed orchards in 1955 the population was general and very abundant throughout the State indicating a high natural potential under 1955 conditions. EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) now located on Long Island, Westchester, Rockland, Orange, Dutchess was reported last year for the first time in Ulster County. A local outbreak occurred in Dutchess County but in commercial orchards populations were very low. In unsprayed orchards, populations were quite high in counties reporting, indicating an increase in population.

EUROPEAN RED MITE (Metatetranychus ulmi) was not as active in 1955 as expected under hot, dry conditions prevailing. Use of early control measures have contributed to low activity. Populations in commercial orchards were rather general and moderate and control was satisfactory. FOREST TENT CATERPILLAR (Malacosoma disstria) was of very local and minor occurence in commercial orchards with outbreaks in unsprayed orchards in these counties: Ulster, Niagara, Clinton, Dutchess, and to some extent, in Rockland. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) damaged apples in Clinton and Oswego Counties but, in other counties, it was of relatively minor importance. FRUIT TREE LEAF ROLLER (Archips argyrospila) in unsprayed orchards, in 1955, was rather high, indicating an increase in activity. On the whole, commercial orchards were mostly free of the pest. APPLE APHID (Aphis pomi) was about the same as for the past few years - rather general and moderately abundant. Control measures were not quite adequate without repeat applications in an average spray application. A FRUITWORM (Xylina sp.) was of relatively minor occurrence in both commercial and unsprayed orchards. EUROPEAN FRUIT LECANIUM (Lecanium corni) continued in local outbreaks, particularly in Ulster, Monroe, Ontario and Columbia Counties. Increased activity is due primarily to the omission of petroleum oil in the schedule without adequate control measures being substituted for it. OYSTERSHELL SCALE (*Lepidosaphes ulmi*) was of very local and minor importance in commercial orchards but occasionally built up to substantial numbers in some unsprayed orchards. PLUM CURCULIO (*Conotrachelus nenuphar*) was relatively less important in 1955 than in 1953 and about the same as in 1954. In unsprayed orchards it was of general and widespread distribution in the Hudson Valley area and not so intense in the western New York counties. In commercial orchards the infestations were rather low throughout the State due to control measures. RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) continued to increase throughout the State despite highly effective control measures. Activity in commercial orchards is not serious in terms of loss of fruit on a State-wide basis, but the inability of the growers to completely control the pest has caused concern. ROSY APPLE APHID (*Anuraphis roseus*) activity was generally moderate throughout the State in unsprayed orchards. Parasites and predators worked effectively during May. Very low infestations were reported in commercial orchards. ROUNDHEADED APPLE TREE BORER (*Saperda candida*) was only of local and moderate importance in unsprayed orchards.

SAN JOSE SCALE (*Aspidiotus perniciosus*) appears to be building up in unsprayed orchards. SCURFY SCALE (*Chionaspis furfura*) was of local and minor importance in both commercial and unsprayed orchards. TARNISHED PLANT BUG (*Lygus lineolaris*) was general in unsprayed orchards and moderate to abundant in Niagara and Monroe Counties. A LEAF MINER (*Lithocolletis crataegella*) occurred throughout the State but in relatively low numbers except in Monroe, Niagara and Green Counties. TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) occurred in relatively fewer numbers during 1955. WOOLLY APPLE APHID (*Eriosoma lanigerum*) appears on the increase in sprayed and unsprayed orchards. Ontario, Wayne and Oswego Counties in western New York reported local outbreaks, some rather serious.

Pear Insects

CODLING MOTH second brood increased on pears in 1955. The infestations were not too serious in commercial orchards with a few local exceptions but in unsprayed orchards infestations were rather high. EUROPEAN RED MITE infestations were relatively low throughout most of the State but rather general and moderate in Niagara and Columbia Counties. A PLANT BUG (*Neolygus invitus*) occasionally caused sufficient damage to classify it as a commercial pest of pears. PEAR MIDGE (*Contarinia pyrivora*) continued to take its toll in local orchards throughout the western area. PEAR PSYLLA (*Psylla pyricola*) continues to be the most important pest of pears in the State. Infestations were uniformly abundant on unsprayed pears generally but with the exception of a few local outbreaks the infestations in commercial orchards were relatively low. PLUM CURCULIO was of relatively minor importance in commercial orchards but showed unusual activity on unsprayed pears.

Cherry Insects

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) very heavily infested unsprayed orchards but not quite as heavy as in some other years. Commercial control was generally excellent. PLUM CURCULIO could be found in most cherry orchards but was of very minor importance. TWO-SPOTTED SPIDER MITE showed a build-up on cherries in several western New York counties. EUROPEAN RED MITE was of relatively little importance in commercial cherry orchards. CLOVER MITE (Bryobia praetiosa) increased somewhat on cherries.

Peach Insects

EUROPEAN RED MITE populations were very low except in Niagara County. EUROPEAN FRUIT LECANIUM was checked by normal schedules but rather severe infestations occurred in unsprayed orchards. LESSER PEACH TREE BORER (Synanthedon pictipes) occurred in sufficient abundance in commercial orchards in 1955 to indicate that they are getting through, in small numbers, the normal spray schedule. ORIENTAL FRUIT MOTH (Grapholitha molesta) took quite an upswing in activity in the lower Hudson Valley, first brood being especially early and abundant. The remainder of the State had low infestations in commercial orchards. PEACH TREE BORER (Sanninoidea exitiosa) appears to be increasing in commercial orchards that are being sprayed with a phosphate type schedule. PLUM CURCULIO was of very minor importance on sprayed peaches. The infestation in unsprayed orchards was rather general and abundant. TARNISHED PLANT BUG summer infestations were not as serious in 1955 as in 1954. The problem was still more serious in Monroe County where the most trouble occurred in 1954.

Plum and Prune Insects

APPLE MAGGOT continued to be a local problem in some commercially sprayed plum and prune blocks. EYE-SPOTTED BUD MOTH was of very local importance, possibly due to material used for curculio control. EUROPEAN RED MITE appears to have been rather serious in a number of counties in western area and moderate in some eastern orchards. EUROPEAN FRUIT LECANIUM was of minor importance except in a few orchards throughout the State. Populations in unsprayed orchards were found to be in moderate numbers. PLUM CURCULIO was of considerably less than average importance. Some unsprayed orchards had heavy infestations but a fair number of counties had only moderate to light infestations in unsprayed orchards.

Quince Insects

EYE-SPOTTED BUD MOTH was of minor importance in a few counties and was general and moderate in unsprayed orchards in Niagara County. ORIENTAL FRUIT MOTH was of minor importance in most of the commercial plantings in the State. TARNISHED PLANT BUG caused severe damage in Niagara County where it was general and severe in unsprayed orchards. Lack of adequate prebloom applications may be responsible.

Vegetable Insect Activity

Prepared by R. R. Kriner

MEXICAN BEAN BEETLE (*Epilachna varivestis*) was quite a problem in 1955. TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*)was very serious on beans in some areas. It was quite troublesome on Long Island to the lima bean plantings and in Erie County to snap beans. SEED CORN MAGGOT (*Hylemya cilicrura*) and CABBAGE MAGGOT (*H. brassicae*) period of infestation in beans was extended at the beginning of the growing season. ONION MAGGOT (*H. antiqua*) was a problem wherever onions were grown on muck. A great amount of damage occurred, especially where no control measures were used. CARROT RUST FLY (*Psila rosae*) was a problem where carrots were grown in muck. Farmers controlled the first brood but have not been able to do much with the second brood. In 1955 it caused a great amount of injury. CARROT WEEVIL (*Listronotus oregonensis*) was a problem on Long Island and in the lower Hudson Valley. On Long Island, it caused a great amount of damage to carrots and parsley. It was also troublesome on celery and carrots grown on muck in Orange County.

CABBAGE APHID (*Brevicoryne brassicae*) did not begin early in many cabbage areas except in Wayne County. Later it caused a great amount of damage. CABBAGE LOOPER (*Trichoplusia ni*) was one of the most troublesome insects of cole crops in 1955. It occurred in nearly every section where cabbage, cauliflower, and broccoli are grown. This pest was not satisfactorily controlled. It appeared in July in great numbers, and most growers were unable to control it. IMPORTED CABBAGEWORM (*Pieris rapae*) came on very early in great numbers and was present nearly all season. CORN FLEA BEETLE (*Chaetocnema pulicaria*) was not very prevalent in sweet corn. CORN EARWORM (*Heliothis zea*) was the greatest problem in the State this past season. Damage was the most extensive in the lower Hudson Valley and on Long Island. In August it was in such numbers that 100 percent infestation occurred in practically all areas where the corn was treated with an insecticide for this pest. EUROPEAN CORN BORER (*Pyrausta nubilalis*)was not as troublesome in the Hudson Valley as in the past. STRIPED CUCUMBER BEETLE (*Acalymma vittata*) was present in great numbers at the beginning of the season of 1955, and young plants were damaged greatly. Many plants became diseased with wilt spread by these beetles. SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) was relatively scarce compared with the striped cucumber beetle. TARNISHED PLANT BUG occurred in great abundance in 1955 causing injury to many crops, including lima bean pods and lettuce. COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) was scarce in potato areas in 1955. POTATO FLEA BEETLE (*Epitrix cucumeris*) was a great problem and the most serious pest in most potato-growing areas and it seems to be getting more numerous and causing more injury to potatoes in the early part of the season. HORNWORMS (Protoparce sp.) were more troublesome in 1955 than in previous season. Most tomato areas experienced injury. The insects were numerous in the Albany-Hudson Valley area and on Long Island and occurred in large numbers in the Rochester and Syracuse areas.

Western New York Vegetable Insect Notes

Prepared by Hervey, Davis and McEwen

The following insects were present in about the usual abundance with little change from 1954: imported cabbageworm, cabbage aphid, cabbage root maggot, Mexican bean beetle, potato leafhopper (on beans), pea aphid, pea weevil, striped cucumber beetle, and seed-corn maggot. The cabbage looper was very abundant and destructive during August and September; heaviest infestation in this area within the past ten years on cabbage, cauliflower, broccoli and lettuce. The population was greatly reduced late in the autumn by a virus disease. Drosophila sp. was more abundant than usual in tomato fields and was a serious problem for processors. Lygus bugs caused considerable injury to lima beans by reducing the set and the quality of the seed.

Greenhouse Insect Activity

Prepared by J. A. Naegele

TWO-SPOTTED SPIDER MITE continued to be a serious pest on roses grown under glass in New York State and has become an increasingly serious pest because of the appearance of resistant strains over the past several years. Increased injury from the complex of SLUGS which are present in New York State greenhouses has caused considerable concern among some growers. The influx of resistant CABBAGE LOOPER in some rose ranges in State caused considerable concern and injury. Many materials were tried in an attempt to get rid of the infestation, but hand picking was finally resorted to. The persistence of CHRYSANTHEMUM APHID in terminals of chrysanthemums was a general and serious problem and concerned growers who did not apply control measures early enough to achieve control when the bugs were not in the crowns.

Livestock Insects

Prepared by H. H. Schwardt

The following insects are listed in approximate order of importance during 1955: house fly, a cattle mange mite (Chorioptes bovis), cattle lice (four species), horn fly, sheep-ticks, hog mange mite (Sarcoptes scabiei suis), and hog louse.

SUMMARY OF INSECT CONDITIONS - 1955

VIRGINIA

Reported by A. P. Morris

Cereal and Forage Crop Insects

CORN EARWORM (Heliothis sp.) damage was medium to heavy generally, although some fields of host crops had only light damage. Many fields of corn had as high as 50 percent of the stalks heavily damaged in the whorls. Damage to the heads of sorghum was heavy by August. Some heavy damage occurred to soybeans but not to the extent or over as large an area as in 1954. Severest damage to soybeans was in King William and Sussex Counties. Severe damage to peanuts occurred in Sussex County and to a lesser extent in the other peanut growing counties. Alfalfa was severely damaged in Warwick. Well over 50 percent of all ears of corn was damaged across the State. ALFALFA WEEVIL (Hypera postica) infestations were known to be present in 18 counties at the beginning of 1955, but by the middle of June a total of 64 were known to be infested. Activity began the latter half of February and continued as late as August. The severity and wide distribution of the infestation was evident by mid-April. Heaviest infestations were first in old infested areas of northern and eastern Virginia, but fields in counties west and south of old infestations were being severely damaged. First cutting of alfalfa was severely damaged or a total loss, and in practically all these areas second cutting was greatly reduced and retarded. The outbreaks caused the purchase of many control rigs and insecticides became hard to get in some areas. Severity of infestitations abated by the middle of June.

PEA APHID (Macrosiphum pisi) was extremely heavy on alfalfa throughout the State during late winter and early spring. The build-up to near economic important levels occurred in late March and by April 1. Populations increased rapidly with severe damage in many instances. A very large number of acres was treated. The temperature was favorable for the aphids but too cool for predators and diseases. A late freeze had weakened alfalfa and the tremendous populations caused the death of many alfalfa plants in established stands and in many new seedings. By the end of April, natural enemies and diseases began to reduce populations and had reduced the infestation generally by the end of May. Heavy infestations again developed in a few fields during the latter half of November. ENGLISH GRAIN APHID (Macrosiphum granarium) and CORN LEAF APHID (Rhopalosiphum maidis) infestations were heavy on barley in scattered areas locally. COWPEA APHID (Aphis medicaginis) was light on clover in one area of Spotsylvania County. ARMYWORM (Pseudaletia unipuncta) outbreaks occurred in scattered localities during 1955. The first outbreaks occurred in oats in southwestern and southeastern areas. During succeeding weeks, barley, wheat, corn, rye and orchard grass, permanent pastures, meadows, and alfalfa were damaged to a varying extent. Damage was not, however, as heavy or widespread in 1955 as in the spring of 1954. Some in the Norfolk area of

Princess Anne and Norfolk Counties had to treat fields of oats, wheat and other small grains. EUROPEAN CORN BORER (Pyrausta nubilalis) damage is generally of most importance in northern and southwestern counties. Counties where damage ranged from light to heavy were Stafford, Madison, Page, Nansemond, Greensville, Norfolk, Princess Anne, Southampton, Appomattox and Prince Edward. Larvae damaged wheat in New Kent and Hanover Counties. A fall survey was completed in November (See CEIR 5(52):1133). FALL ARMYWORM (Laphygma frugiperda) outbreaks damaged corn, soybeans and peanuts near the end of July. The first outbreaks were reported from Goochland, Richmond, Southampton, Surry and Washington Counties. Infestations were most widespread and damaging in the soybean and peanut growing areas in southeastern and eastern Virginia. Neither outbreaks nor damage was as heavy and widespread as in 1954. POTATO LEAFHOPPER (Empoasca fabae) populations became quite heavy on alfalfa in many counties by mid-July and had caused many fields to turn yellow by the end of July. Dry weather accentuated the injury until heavy rains about the middle of August reduced populations and made it possible for stands to grow out of the leafhopper damage in most areas.

JAPANESE BEETLE (Popillia japonica) adults emerged about mid-June. Light to heavy damage, but generally light, occurred to corn, soybeans, alfalfa and lespedeza. Populations were heavier than in 1954. Larvae of GREEN JUNE BEETLE (Cotinis nitida) damaged pastures, clover, alfalfa and lawns to a varying extent. Area of heaviest infestation appears to be in the Tidewater area. First half of July, heavy flights took place in Nansemond, Norfolk and Princess Anne Counties, and moderate flights occurred in Isle of Wight, Surry, Southampton and Sussex Counties. MEADOW SPITTLEBUG (Philaenus leucophthalmus) damage was not as heavy or widespread this year as during 1954. Medium damage to clover was reported from Carroll County. Heavy damage occurred to clover in areas of Washington and Bland Counties. CUTWORMS damaged clover and grasses in Henrico County by late April and corn in Spotsylvania, Middlesex and Smyth Counties soon afterwards. CLOVER LEAF WEEVIL (Hypera punctata) larval outbreaks occurred in clover and alfalfa in most parts of the State and the fungus disease that usually keeps the species under control was slow to do so in Mecklenburg, Henry, Wythe, Floyd and Prince Edward Counties. CLOVER ROOT BORER (Hylastinus obscurus) and CLOVER ROOT CURCULIO (Sitona hispidula) did not do as much damage as during 1954 but damaged red clover in Augusta County, killing out many second-year stands. BLUEGRASS BILLBUG (Calendra parvula) caused much less damage to grass than in 1954. SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) damage to peanuts varied from light to heavy and lighter than in 1954. Moderate to severe damage to corn seedlings occurred in spotted areas of widely separated counties. Other insects that damaged cereal and forage crops in one or more small areas spotted over the State were corn sap beetle, corn root webworm, southern cornstalk borer, lesser cornstalk borer, sugarcane beetle and seed-corn maggot to corn; lygus bugs, green cloverworm, flea beetles, alfalfa caterpillar, three-cornered alfalfa hopper, blister beetles(various species), garden webworm, lesser clover leaf weevil, and sweetclover weevil to alfalfa and clover; green cloverworm, bean leaf beetle, flea beetles, thrips and spider mites to soybeans; thrips and lesser cornstalk borer to peanuts and alfalfa webworm to Ladino clover-orchard grass pastures. Grasshoppers were general and damaged all crops to a small extent. Nomophila noctuella damaged alfalfa once.

Fruit Insects

CODLING MOTH (Carpocapsa pomonella) damage to apple orchards in Virginia was probably lighter this year than in 1953-54 except in southern areas where spray schedules were limited. Light to moderate damage to apples occurred in the northern orchards. In Augusta and Albemarle Counties damage to apples was light at harvest time. APHIDS were of little consequence in Virginia apple and peach orchards during 1955. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) damage during the early part of the season by first and second generations was low but damage by the third generation was scattered and caused concern to many growers. PLUM CURCULIO (Conotrachelus nenuphar) did little damage to apples during 1955. EUROPEAN RED MITE (Metatetranychus ulmi) was more active during the spring and early summer than for a number of years in many northern apple orchards where it was doing heavy damage at petal fall. Infestations were brought under control by mid-summer. A LEAF MINER (Callisto geminatella) damage was more general in orchards in northern Virginia than in 1954, and damage would have been extremely heavy except for proper control measures. YELLOW-NECKED CATERPILLAR (Datana ministra) infestation was considerably less in 1955 than in the three or four preceeding seasons. Commercial injury was negligible in northern areas. WALNUT CATERPILLAR (Datana integerrima) damaged host trees from approximately the middle of July through October 10. Outbreaks occurred on black walnut and/or pecan trees at Fredericksburg and City of Hampton and in counties of Franklin, Alleghany, Henrico, Carroll, Stafford and Spotsylvania. Infestations were medium to severe on walnut trees in north central Virginia.

Truck Crop and Garden Insects

EARWORMS (Heliothis sp.) were unusually destructive on untreated early sweet corn; did considerable damage to tomatoes all summer; were quite injurious generally to snap and lima beans; and caused heavy damage to some fields of peppers, kale, collards and head lettuce. The greatest losses by the corn earworms were in the truck cropping areas of southeastern and eastern areas. CABBAGE APHID (Brevicoryne brassicae) plagued crops all summer and many applications of insecticides were made to bring the crops through. GREEN PEACH APHID infestations ranged from light to heavy on spinach crops as early as March and continued so all year and to a lesser extent on cabbage and kale late in the season. PEA APHID on garden peas required insecticides by May. FALL ARMYWORM (Laphygma frugiperda) injured sweet corn by the end of July and was absolutely uncontrollable in southeastern area mid-season. It also damaged cabbage and kale crops in some eastern areas in September. CABBAGE LOOPER (Trichoplusia ni), IMPORTED CABBAGEWORM

(Pieris rapae), and DIAMONDBACK MOTH (Plutella maculipennis) larvae did considerable injury to cole crops. Heaviest damage by these three species was in eastern and southeastern areas. HORNWORMS were heavy on 30 acres of early tomatoes in Northumberland County by the first of July and were numerous on this crop in all eastern and southeastern areas within a few days. They severely damaged tomatoes in Fairfax County, and medium damage was done to tomatoes in Prince William County. BEAN LEAF BEETLE (Cerotoma trifurcata) first occurred in late May on snap beans and black-eyed peas in King William County. During July they severely damaged black-eyed peas in Westmoreland County and caused light injury to snap beans in eastern and southeastern areas. FLEA BEETLES (particularly Epitrix hirtipennis and E. cucumeris) heavily damaged truck crops and gardens in all areas, particularly crops in eastern and southeastern areas. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) damaged poorly-treated potatoes particularly of eastern and southeastern areas. MEXICAN BEAN BEETLE (Epilachna varivestis) populations were about normal on beans during June in eastern and southeastern areas with damage from light to moderate. In July severe damage to untreated gardens occurred, generally.

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) and STRIPED CUCUMBER BEETLE (Acalymma vittata) damaged host plants in all parts of the State, along with SEED-CORN MAGGOT and CABBAGE MAGGOT; were severe on cucumbers on the Eastern Shore during the first half of May; had to be controlled during July on fall cucumbers in eastern and southeastern areas to prevent the spread of wilt; and were very numerous on cucurbits in the truck crop areas during September. TWO-SPOTTED SPIDER MITE was most common on beans. PICKLEWORM (Diaphania nitidalis) injury in truck cropping areas occurred to cucumbers, white summer squash, and especially to yellow crookneck squash during late July, to cantaloupes ripening in late August, and was severe on pie pumpkins during the first half of September and injured fall plantings of cucurbits September. POTATO LEAFHOPPER (Empoasca fabae) moderately damaged beans and potatoes in eastern areas and heavily damaged vegetables in Scott County. TOMATO RUSSET MITE (Vasates lycopersici) first found at Arlington in 1954, this year was found in a Norfolk greenhouse and in a Richmond garden. Vegetable weevil moderately damaged some plantings of tomatoes in the Norfolk area and a single adult was found at Richmond. SEED-CORN MAGGOT caused medium to severe damage in some areas. CABBAGE MAGGOT destroyed cabbage, cantaloupe and cucumber plants in Warwick City during April, damaged cabbage in Tazewell County early in July; and heavily damaged turnips in Highland County late in July.

Tobacco Insects (Dominick & Morris)

TOBACCO FLEA BEETLE (Epitrix hirtipennis) was more abundant in tobacco plant beds than during 1954 and resulted in some damage particularly in the eastern tobacco growing counties. Damage to newly-set tobacco was generally light in spotted, local areas and some damage occurred to late-maturing tobacco. WIREWORM damage to newly-set tobacco was scattered with more extensive injury in several of the eastern counties. BUDWORMS (*Heliothis* spp.) appeared earlier than usual but damage was light. First brood of HORNWORMS (*Protoparce* spp.) was generally light and the second brood was moderate to heavy particularly on late tobacco and required control on a large part of the flue-cured tobacco. GRASSHOPPERS caused greater damage than usual to flue-cured tobacco. TREE CRICKETS (*Oecanthus* spp.) caused light damage in several fields of Pittsylvania and Halifax Counties. GREEN PEACH APHID (*Myzus persicae*) was light to severe early in several of the larger tobacco growing counties and many growers used insecticides. With the on-set of hot dry weather during July, aphid infestations largely disappeared due to biological control and further build-up during the season failed to materialize.

Cotton Insects

BOLL WEEVIL (*Anthonomus grandis*) winter survival was only 3.5 percent or an average of 71 per acre. By June 17, counts in Mecklenburg and Southampton Counties revealed only 25 and 50 per acre present. The average infestation by square counts in Greensville, Southampton and Brunswick Counties during the first week of August was only 12 percent infestation, still much lower than the July, 1954, infestation rate. Populations never became as heavy as during 1954. A fall survey in 4 counties to determine the number of weevils in hibernation revealed an average of 1,476 per acre. BOLLWORMS (*Heliothis* sp.) did little damage to cotton in Virginia during 1955. COTTON APHID (*Aphis gossypii*) was never a problem on cotton during 1955. THRIPS caused light to heavy damage in several counties. FLEA BEETLES did little damage to young cotton in 1955. The highest population count for the season was 5 per 100 feet of row. SPIDER MITES were of no significance.

Forest and Shade Tree Insects (A. P. and C. L. Morris)

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) killed an estimated 4,500,000 board feet of shortleaf and Virginia pines in five counties in the Richmond area on 3,000 acres from the fall of 1954 to late spring of 1955. At the time of the survey, the number of new attacks of this beetle had decreased by nearly 90 percent. Surveys during late September by the Virginia Forest Service revealed a flare-up of beetles in many old spots and a number of new spots in Prince Edward, Cumberland, and Buckingham Counties. IPS BEETLES (*Ips avulsus*, *I. pini* and *I. calligraphus*) were found in dead and dying pine trees in Virginia during 1955. BLACK TURPENTINE BEETLE (*Dendroctonus terebrans*) caused damage in almost all areas of the State but heaviest in the Piedmont area. NANTUCKET PINE MOTH (*Rhyacionia frustrana*) heavily damaged tips of young pines in the Norfolk area and tips of pine new growth in the Manassas area of Prince William County. PINE SAWFLIES (*Neodiprion lecontei* and *N. abbotii*) larvae heavily damaged pines in some areas as usual. They severely damaged pines at Hilton Village and Warwick City during April and pines in Mecklenburg County during late July. PALES WEEVIL (*Hylobius pales*) damage was scattered and generally light. ELM LEAF BEETLE (*Galerucella xanthomelaena*) larvae heavily damaged foliage of elm trees generally. FALL CANKERWORM (*Alsophila pomotaria*) did not do as much damage in 1955 as in 1954. WALNUT CATERPILLAR (*Datana integerrima*) damaged host trees from approximately the middle of July through October 10. Outbreaks occurred on black walnut and/or pecan trees at Fredericksburg and City of Hampton and in counties of Franklin, Alleghany, Henrico, Carroll, Stafford and Spotsylvania. Infestations were medium to severe on walnut trees in north central Virginia. A LACE BUG (*Corythucha* sp.) caused heavy chlorosis of leaves of sycamore trees and white oak trees in Bath County and were spotted along U. S. Highway No. 11 from Staunton to Winchester. BOXELDER BUG (*Leptocoris trivittatus*) populations were heavy on boxelder trees generally.

Nursery and Ornamental Plant Insects

A WAX SCALE (*Ceroplastes ceriferus*) ranged from light to heavy on hollies, boxwoods, camellias, flowering quince, and gardenias in southeastern Virginia nurseries and home plantings. WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) infestations were from light to heavy on red twig dogwoods, lilacs, willows, osmaria, ash, peach, philodendron and *Petalla trifoliata* in southern area nurseries. EUONYMUS SCALE (*Unaspis euonymi*) infestations on Euonymus plants were from light to heavy in southeastern area nurseries; heavy in Nottoway and Rockbridge Counties and at Arlington, Holland, Irvington, Staunton and Dublin. CAMELLIA SCALE (*Lepidosaphes camelliae*) populations on camellia plants were light to heavy in southeastern area nurseries. PINE NEEDLE SCALE (*Phenacaspis pinifoliae*) heavily damaged needles of mugho and Austrian pines in Norfolk County and killed a few pines in the Galax area of Grayson and Carroll Counties. OYSTERSHELL SCALE (*Lepidosaphes ulmi*) was heavy on lilacs in northern Virginia and damaged lilacs in a locality of Tazewell County. A PEONY SCALE (*Pseudaonida paeoniae*) damage to camellias in Warwick City, and Newport News and Norfolk and Nansemond Counties ranged from light to heavy. GLOOMY SCALE (*Chrysomphalus tenebricosus*) infestations in southeastern area nurseries were from light to heavy on honeylocust and red and silver maple trees. TEA SCALE (*Fiorinia theae*) damaged camellias in Nansemond, Southampton, Norfolk and Princess Anne Counties. BAGWORM (*Thyridopteryx ephemeraeformis*) heavily damaged and in some cases killed arborvitae, red cedar trees, rose bushes, apple trees, and most species of evergreens. Nearly every county or city had an infestation of some degree. MIMOSA WEBWORM (*Homadaula albizziae*) infestations on mimosa trees were present in all the major cities of the State and in many other areas. GIANT HORNET damaged lilac bushes by chewing the bark off of the main stems, limbs and twigs at one or more places in Appomattox, Spotsylvania and Scott County and in Richmond and Blacksburg. HACKBERRY NIPPLE GALL (*Pachypsylla celtidis-mamma*) caused the yellowing and shedding of leaves of hackberry at Pulaski and were medium to heavy on hackberry trees in Roanoke and Lancaster Counties. WHITE FLIES *Dialeurodes citri* were severe on gardenias in the City of Hampton and vicinity and *Trialeurodes vaporariorum* and/or *Aleyrodes azaleae* infestations were light to heavy on gardenias and azaleas in some southeastern area nursery stock. LACE BUGS (*Stephanitis* sp.) were a

State-wide problem and were worse than usual on pyracanthas, azaleas, and crataegus in southeastern area. Infestations ranged from light to heavy. TWIG GIRDLER (Oncideres cingulatus) continued to heavily damage honeylocust seedlings in a southeastern area nursery and some of the persimmon and ash trees in the nursery to a lesser extent. HOLLY LEAF MINER (Phytomyza ilicis) infestations on various types of hollies scattered throughout the State ranged from very light to heavy. BOXWOOD LEAF MINER (Monarthropalpus buxi) was heavy on boxwoods in Fairfax County, Arlington, Fredericksburg, Richmond, Lynchburg, Roanoke, Lexington, Warwick City, and many other areas. A BLACK BLISTER BEETLE (probably Epicauta pennsylvanica) practically stripped all the leaves from branches of mimosa trees in Wythe County.

Insects Affecting Man and Animals

HOUSE FLY (Musca domestica) was kept at a low level around dairies, homes, food markets, eating establishments, and many cattle barns by persistent efforts. MOSQUITOES became very heavy during 1955, particularly around marshes of southeastern and eastern areas. Many people at summer homes along the seashore and along rivers abandoned outdoor activities and sports. Areas in Norfolk and Prince George Counties were especially heavily infested. CATTLE LICE were very common on cattle in southwestern, Shenandoah Valley and eastern areas. Three species were identified from herds in Montgomery County: CATTLE BITING LOUSE (Bovicola bovis), LONG-NOSED CATTLE LOUSE (Linognathus vituli), and SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus). SHEEP SCAB MITE (Psoroptes equi ovis) occurred on sheep in Smyth, Rockingham, Tazewell, Grayson, Frederick, Alleghany, Augusta, Loudoun, Russell and Washington Counties. All infested animals were dipped. BLACK WIDOW SPIDER (Latrodectus mactans) was about as numerous as in 1954. Requests for control measures were received from all parts of the State. TICKS were reported as being present in very large numbers in the Dismal Swamp area of Norfolk County during the spring of 1955. FLEAS were severe on lawns in sandy areas of Richmond and vicinity. A BOT FLY (probably Oestrus ovis), first instar larva, caused ocular myiasis in a child's eye in Roanoke County. HORN FLY (Siphona irritans) populations were never severe. COMMON CATTLE GRUB (Hypoderma lineatum) was heavy in cattle in Frederick County during early March. Infestations were present in all parts of the State to some extent.

Stored Products Insects

HIDE BEETLE (Dermestes maculatus) damaged cured hams and fat back in King William, Tazewell, Montgomery, Augusta and Roanoke Counties and heavily damaged about a ton of cured pork in Richmond, Virginia. LARDER BEETLE (Dermestes lardarius) and RED-LEGGED HAM BEETLE (Necrobia rufipes) also damaged home-stored hams in various parts of the State. POTATO TUBERWORM (Gnorimoschema operculella) was more numerous last spring than any year since 1947 but damage in the fall was negligible.

Household Insects

Heavy infestations of BROWN-BANDED ROACH (Supella supellectilium) were recorded in Loudoun, Henry and Pittsylvania Counties and from Richmond. Heavy infestations of ORIENTAL COCKROACH (Blatta orientalis) were reported in Montgomery, Page and Sussex Counties and from Roanoke. GERMAN COCKROACH (Blattella germanica) was reported from Montgomery, Roanoke and Bedford Counties and from Richmond. DERMESTIDS, various species, have damaged rugs, stuffed furniture, and other household furniture in all parts of the State. GIANT HORNET (Vespa crabro germana) has become a State-wide problem by their nesting in attics, under eaves of houses. Heavy infestations occurred in Loudoun, Lunenburg, Montgomery and Scott Counties. BOXELDER BUG (Leptocoris trivittatus) caused concern throughout the State by their large numbers in and near dwellings. CLOVER MITE (Bryobia praetiosa) invaded houses in many parts of the State.

Beneficial Insects

When the weather became warm enough for LADY BEETLE development and emergence from hibernation, they did much to reduce severe outbreak of pea aphids on alfalfa. GROUND BEETLE populations during the first half of June in alfalfa fields in Pittsylvania, Spotsylvania and Cumberland Counties ranged from light to heavy. A WASP (Campsomeris plumipes), a white grub parasite, emerged by the thousands and was flying over the grass in an area in Chester.

Structural Wood Product Insects

TERMITE damage to homes, public buildings and wooden structures continues to increase generally. OLD HOUSE BORER (Hylotrupes bajulus) is becoming more of a problem every year. Most complaints come from owners of homes built in the last five years. POWDER-POST BEETLES damaged structural wood in homes in Roanoke and Page Counties, in Narrows, Ellerson, Victoria, Clintwood and West Point.

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